

The type species of *Ilione* (Diptera: Sciomyzidae)

[Die Typus-Art der Gattung *Ilione* (Diptera: Sciomyzidae)]

by

George C. STEYSKAL†, F. Christian THOMPSON, Wayne N. MATHIS
and Lloyd KNUTSON

Washington (USA)

Gaeta (Italy)

Abstract	The genus <i>Ilione</i> HALIDAY contains both snail-killing (subgenus <i>Knutsonia</i>) and clam-killing (subgenus <i>Ilione</i>) flies, an unusual occurrence among insects. This and morphological differences warrant subgeneric recognition. The nomenclatural history of the name <i>Ilione</i> is reviewed, and its type species is determined to be <i>Tetanocera lineata</i> FALLÉN.
Key words	Diptera, Sciomyzidae, <i>Ilione</i> , <i>Knutsonia</i> , <i>Elgiva</i> , nomenclature
Zusammenfassung	Die Gattung <i>Ilione</i> HALIDAY enthält sowohl schnecken-tötende Arten (Untergattung <i>Knutsonia</i>) als auch solche, die sich in Muscheln entwickeln (Untergattung <i>Ilione</i>). Dies ist eine ungewöhnliche Konstellation unter den Insekten. Dieses Faktum und morphologische Unterschiede erfordern eine Unterteilung in Untergattungen. Es wird eine Übersicht über die nomenklatorische Historie des Namens <i>Ilione</i> gegeben, und als Typusart erweist sich <i>Tetanocera lineata</i> FALLÉN.
Stichwörter	Diptera, Sciomyzidae, <i>Ilione</i> , <i>Knutsonia</i> , <i>Elgiva</i> , Nomenklatur

Introduction

Ilione HALIDAY is one of the most common and widespread genera of malacophagous Sciomyzidae in the Palaearctic Region. The biology of the genus is of particular interest as, of the 6 reared species, 5 are snail killers and one is a clam killer. The latter, *I. lineata*, one Holarctic two Palaearctic and three Nearctic species from the genus *Renocera* HENDEL, and one Australasian species (*Eulimnia philpotti* TONNOIR & MALLOCH, 1928 from New Zealand) are the only insects known to be obligate predators of freshwater finger-nail clams (Sphaeriidae). These distinct differences in the biology along with other characters in both the adults and immature stages warrant recognition of subgenera in *Ilione*. The names for those subgenera are dependent on knowing the appropriate type species of *Ilione*.

Some generic names of animals proposed by authors in the nineteenth century had their origin not as part of a well-documented, descriptive treatise, but in a simple list of names, often primarily for use in curating collections. Such is the case for *Ilione* HALIDAY in CURTIS, 1837. Because *Ilione* and its supposed synonyms have had a tortuous nomenclatural history, current workers are often perplexed as to which name to use. The use of *Ilione* and supposed synonyms is herein described and analyzed in relation to the International Code of Zoological Nomenclature (hereafter cited as ICZN or the Code; 1999, 4th edition). As a result, *Ilione* with *Knutsonia* VERBEKE, 1964, as a subgenus, and *Elgiva* MEIGEN, 1838, are confirmed as valid names.

Zoological nomenclature is intended to promote stability and universality while still providing for uniqueness within a changing framework, the classification, and the accrual of new taxa. To these ends, formal nomenclature has succeeded remarkably well despite its humble beginnings as a system for Nature devised by Carolus LINNAEUS over 250 years ago. Still,

nomenclatural errors arise from a failure to do the required research or from lack of adequate literature and cannot be attributed to the rules. The case we present here is a combination of changes in the rules, misinterpretations, and oversights. First we present the facts, which are followed by our interpretation of them as a discussion.

Background

The genus *Ilione* HALIDAY was first listed in CURTIS (1837) in an Addenda to his *Guide to an Arrangement of British Insects*, etc., the work being in numbered columns with the portions pertinent to *Ilione* as shown (Fig. 1, columns 271 & 280).

In the Preface to this work, CURTIS provided the reader with explanatory remarks (pp. iii–vi) that clarify and give reasons for the numbering system he adopted. His remarks are as follows:

“1st. It will enable them [the readers] to arrange their Cabinets systematically.

“2ndly. They may mark off their own Insects so as to know instantly whether they have a species or not ...

“3rdly. It will form labels for Cabinets.

“4thly. It will be a systematic index to ‘The British Entomology,’ a reference being given to every Genus already illustrated ...”

“5thly. It will be a Catalogue of the Author’s Cabinet, those without a * being his desiderata. ...”

Inasmuch as this work is a 2nd edition, CURTIS also noted: “It may be observed that the original numbers to the *Genera* have been invariably retained ... and with a few exceptions the old numbers to the *species* remain also ...” CURTIS further stated “...but where the genera have received great additions, as in *Tachina* for instance, the numbers of MEIGEN have been substituted, by which means an easy reference may be made to his valuable work.” One additional remark by CURTIS is crucial to an understanding of the lists, both in the main text and in the ‘Addenda’, and the nomenclatural consequences: “It need scarcely be added that the generic and specific names without numbers are considered as synonyms, although many of the former which intersect long genera will most probably be eventually adopted, and it may often happen that all the species following such generic names would not be considered by the Author who proposed the name as belonging to his group, but the one *immediately* following is always a typical species; it will also be observed that the species in such cases are left with terminations agreeing with the first generic name, as in *Borborus*.”

Discussion

Although CURTIS placed *Limnia*, *Pherbina*, *Thais*, *Hydromyia*, *Ilione*, and *Chione* in his ‘Addenda’ as synonyms of *Tetanocera*, he thought it likely that others would eventually consider them and their species, the species *immediately* following them, as distinct genera. The problem with *Ilione* is that there was no species epithet that “immediately followed” it. One is, therefore, left with the problem of guessing how these names in the Addenda were to be interpolated into those listed in the main section. THOMPSON & MATHIS (1980: 84) erred by simply assuming that the species epithets listed under *Chione* also applied to *Ilione* as these were the only ones closely associated with *Ilione*. In retrospect, we realize the names should be arranged as in the column 3 of our table. When this is done, it is clear that the species immediately following *Ilione* is *Tetanocera lineata* FALLÉN. The first author to clearly associate the epithet, *lineata*, with *Ilione* was apparently HALIDAY himself in WESTWOOD (1838:146; “...and *Ilione* (*I. lineata* HAL.) are referred by Mr. HALIDAY to the genus *Tetanocera*.”) THOMP-

Column 271	Column 280 (Addenda)	Combined columns
1326 TETANOCERA <i>Dum.</i>		1326 TETANOCERA <i>Dum.</i>
*1 marginata <i>F.</i>		*1 marginata <i>F.</i>
*4 Chaerophylli <i>F.</i>		*4 Chaerophylli <i>F.</i>
*5 reticulata <i>F.</i>		PHORBINA <i>Desv.</i>
*6 rufifrons <i>F.</i>		*5 reticulata <i>F.</i>
*7 Pratorum <i>Fall.</i>		*6 rufifrons <i>F.</i>
*8 oblitterata <i>F.</i>	1326 LIMNIA <i>Desv.</i>	LIMNIA <i>Desv.</i>
*9 punctata <i>F.</i>	PHORBINA <i>Desv.</i>	*7 Pratorum <i>Fall.</i>
*10 umbrarum <i>L.</i>	THAIS <i>Hal.</i>	*8 oblitterata <i>F.</i>
*11 Hieracii <i>F.</i>	15 silvatica.	*9 punctata <i>F.</i>
*12 ferruginea <i>Fall.</i>	HYDROMYIA <i>Desv.</i>	*10 umbrarum <i>L.</i>
*13 arrogans <i>M.</i>	ILIONE <i>Hal.</i>	*11 Hieracii <i>F.</i>
*14 elata <i>F.</i>	CHIONE <i>Desv.</i>	*12 ferruginea <i>Fall.</i>
*15 vittata <i>Curt.</i>	21 communis <i>Desv.</i>	*13 arrogans <i>M.</i>
media <i>Hal.</i>	22 sepedonidea <i>Desv.</i>	*14 elata <i>F.</i>
*17 aratoria <i>F.</i>		THAIS <i>Hal.</i>
*18 dorsalis <i>F.</i>		15 silvatica.
*19 lineata <i>Fall.</i>		vittata <i>Curt.</i>
*20 cucullaria <i>L.</i>		media <i>Hal.</i>
		HYDROMYIA <i>Desv.</i>
		*18 dorsalis <i>F.</i>
		ILIONE <i>Hal.</i>
		*17 aratoria <i>F.</i>
		*19 lineata <i>Fall.</i>
		*20 cucullaria <i>L.</i>
		CHIONE <i>Desv.</i>
		21 communis <i>Desv.</i>
		22 sepedonidea <i>Desv.</i>

Fig. 1: Combined faximile from CURTIS (1837) showing the different columns with respect to *Ilione*.

SON & MATHIS (1980) like earlier authors, assumed that the species referred to here was *Tetanocera lineata* FALLÉN, 1820, as it was a common practice to append the name of the person on whose authority the name is being used, not the original author to a species' epithet. The other possibility is that "*lineata* HAL." was a manuscript name.

HALIDAY was a brilliant taxonomist, seeing distinctions that would not be recognized as important until a hundred years later. Unfortunately, HALIDAY, while corresponding extensively with his colleagues, did not publish many of his ideas. SCHINER (1862) was the first to definitely associate FALLÉN's species with *Ilione*. In a key to *Elgiva* species (p. 61–64), he treated five species occurring in Austria: *E. albiseta*, *E. dorsalis*, *E. lineata* (p. 63), *E. rufa*, and *E. cucullaria*. Only *E. lineata* is mentioned in connection with *Ilione*: "FALLÉN, Dipt. succ. Sciomyz. 11. 14. (1820.) – ZETTERST. Dipt. scan. V. 2144. 18. – LOEW. Dipt. Beitr. I. 46. 9. – ? FABRICIUS. System. Entom. u. Spec. insect. II. 449. 71 (*Musca cucullaria*.) (Gatt. *Ilione* HALID.) ***lineata***" [the last word in bold face]. *Musca cucullaria*, sensu FABRICIUS 1775 & 1781, was evidently considered a questionable synonym of *E. lineata*, but there is no doubt that the *lineata* of FALLÉN 1820 is being referred to *Elgiva*, of which *Ilione* is considered a synonym.

HENDEL (1901: 141, also 1902a) was the first to adopt *Ilione* as the valid name for a taxon, this time as part of a generic key: "*Ilione* HALID. (*cucullaria* L. und *rufa* PNZ.)." Only a year later, however, HENDEL (1902b) stated that "Since this [*Ilione*] is a mere catalogue name (it was cited for the first time in CURTIS' Guide, 2nd ed., p. 280 without description or mention of a typical species and then in WESTWOOD'S Intro., p. 146 in connection with *lineata* HAL., a species nowhere described), I drop it ..." (STEYSKAL'S translation from German). HENDEL then named the taxon he had considered as *Ilione*, one based on *Musca cucullaria* LINNAEUS and *Musca rufa* PANZER, *Hedroneura*.

BECKER (1905: 68–69) listed *Ilione* as valid from HALIDAY in WESTWOOD and as a synonym of *Elgiva*. Under the species *lineata* FALLÉN he indicated that name had been combined with *Ilione* by HALIDAY in WESTWOOD.

MELANDER (1920: 322) followed BECKER's treatment, listing *Ilione* as a synonym of *Elgiva*.

SÉGUY (1934: 285) attributed *Ilione* to HENDEL and as a synonym of *Hedroneura* HENDEL.

SACK (1939:62) cited "*Ilione* HALID." as a synonym under *Elgiva* [MEGERLE] MEIGEN, 1838.

KLOET and HINCKS (1945: 391) used *Ilione* as validated in WESTWOOD as the senior synonym for *Chione* and *Elgiva* of authors (not MEIGEN), with *lineata* FALLÉN as the type of the genus. These are the only uses of *Ilione* before 1961 that we could find. We therefore consider that *Ilione* satisfies the requirements of Articles 11 (Publication as a junior synonym) and 67 (Type Species) as follows:

1) Art. 11.6.1 - It was certainly first published as a junior synonym of *Tetanocera*; it was made available ("adopted as the name of a taxon" [genus]) in 1901 by HENDEL; and it dates from its first publication as a synonym in 1837 (HALIDAY in CURTIS).

2) Art. 67.12 - The type species "is that nominal species (cited by an available name) first directly associated with it" is *lineata* FALLÉN, by SCHINER 1862, if not earlier.

Application of these conclusions results in the following changes in post-1961 usage.

After HENDEL (1902b) "dropped" *Ilione*, his generic name *Hedroneura* was quite generally used until VERBEKE (1964) addressed the problems of the names *Elgiva* MEIGEN and *Ilione*. He noted that: 1) the proper type for *Elgiva* was *Musca cucularia* LINNAEUS designated by RONDANI (1856: 106); 2) *Ilione* was a *nomen nudum*; and 3) *Elgiva* of authors was without a name, for which he proposed *Knutsonia*. VERBEKE gave a complete and accurate account of the name *Ilione*, unfortunately his conclusion was invalidated by changes in the ICZN. Under the 1961 version of the Code, names published in synonymy were not thereby made available. As this clause (Art. 11d) was contrary to opinion 24, the International Congress of Zoology at Washington (1963) changed the Code to conform to the earlier opinion. STEYSKAL (1965) muddled the matter by confusing *Ilione* of HALIDAY and earlier authors with *Elgiva* and recognizing *Ilione* of HENDEL (1901) as a distinct name and as a synonym of *Elgiva*. COLLIN (1966), following an obscure argument, noted that *Ilione* was the valid senior name for *Knutsonia*. STEYSKAL (1967) also discussed the name *Ilione* in some detail, but still did not accept it, nor did he accept the association of *lineata* FALLÉN with it. This was due to lack of any clear rules for determining the types of names first proposed in synonymy in the then current Code (1964 version). Finally, KNUTSON & BERG (1967) recognized *Tetanocera lineata* FALLÉN and *Elgiva rossica* MAYER, 1953 as distinct from the other species of *Knutsonia*, and created a new subgenus for them, *Tumidicercus*.

Conclusions

Inasmuch as under the current Code (ICZN 1999) *Ilione* is now considered as available with *lineata* FALLÉN as its type species, that generic name is a year older than *Elgiva*, but its type species is now generally considered to be in a distinct genus from *Elgiva*, one now known (ROZKOŠNÝ & ELBERG 1984: 184) as *Knutsonia* VERBEKE 1964, subgenus *Tumidicercus* KNUTSON & BERG 1967. The genus *Elgiva*, therefore, remains, but with different synonymy. The generic name *Knutsonia* also remains, but in the status of a subgenus of *Ilione*.

One last error needs to be corrected in regards to *Knutsonia*. All recent works cite the type species as being fixed by subsequent designation in KNUTSON & BERG (1967). If this were true, then *Knutsonia* VERBEKE would be a *nomen nudum* under the Code and the name would

be validated from KNUTSON & BERG. Fortunately, VERBEKE provided a perfectly valid type-designation in his paper. What apparently confused some subsequent workers was his statement of why he did not select *lineata* FALLÉN as the type or whether his actions were that of proposing a replacement name for *Elgiva* of authors (ROZKOŠNÝ *in litt.*).

This may be tabulated as follows:

Genus *Elgiva* MEIGEN

Elgiva MEIGEN, 1838: 365; type species: *Musca cucularia* LINNAEUS, 1767, by designation of RONDANI 1856: 106.

Hedroneura HENDEL, 1902b: 265; type species: *Musca cucularia* LINNAEUS, by designation of CRESSON 1920: 81.

Genus *Ilione* HALIDAY

Ilione HALIDAY in CURTIS, 1837: 280; type species: *Tetanocera lineata* FALLÉN 1820, by subsequent monotypy in SCHINER 1862: 63.

Tumidicercus KNUTSON & BERG, 1967: 36; type species: *Tetanocera lineata* FALLÉN, by original designation.

Subgenus *Knutsonia* VERBEKE

Knutsonia VERBEKE, 1964: 3; type species: *Musca albiseta* SCOPOLI, 1763, by original designation.

Chione ROBINEAU-DESVOIDY, 1830: 679, preoccupied by MEGERLE 1811 (Mollusca); type species: *Chione sepedonoidea* ROBINEAU-DESVOIDY, 1830 (= *albiseta* SCOPOLI), by designation of ROZKOŠNÝ & ELBERG 1984: 84.

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This paper began as a diatribe by STEYSKAL against THOMPSON & MATHIS (1980), but that manuscript was rejected for publication. Later STEYSKAL invited both MATHIS and THOMPSON to join him in this work as he believed they had made a serious error that should be corrected. As *Ilione* quickly obtained universal acceptance among sciomyzid workers and the question of the appropriate type-species would not change this usage, the manuscript was set aside when STEYSKAL retired. KNUTSON revived the manuscript as there is now a need for subgeneric names within *Ilione*.

Literature

- BECKER, T. (1905): Cyclorrhapha Schizophora: Holometopa. – Pp. 1–273 in: BECKER, T.; BEZZI, M.; KERTÉSZ, K. & STEIN, P. (eds.): Katalog der Paläarktischen Dipteren. Vol. 4, [i] + 328 pp.; Budapest: G. Wesselényi, [1905.05.06].
- COLLIN, J. E. (1966): Some overlooked synonymy and additional species in British Sciomyzidae (Diptera), and a note on *Limnophora exsurda* (Anthomyiidae). – Entomologist's Record and Journal of Variation **78**: 227–230; London, [1966.10.15].
- CRESSON, E. T., Jr. (1920): A revision of the Nearctic Sciomyzidae (Diptera, Acalyptratae). – Transactions of the American Entomological Society **46**: 27–89; Philadelphia, [1920.03.31].
- CURTIS, J. (1837): A guide to an arrangement of British Insects; being a catalogue of all the named species hitherto discovered in Great Britain and Ireland. 2nd Ed., greatly enlarged. vi + 294 cols.; London: J. Pigot, [after 1837.06.??].
- FALLÉN, C. F. (1820): Sciomyzides Sveciae. 16 pp.; Lund: Berlingianis, [1820.06.13].
- GRIFFIN, F. J. (1932a): On the date of publication and contents of the parts of WESTWOOD (J.O.), Introduction to the modern classification of insects, 1838–1840. – Proceedings of the Entomological Society of London **6** (part III): 83–84; London, [1932.??.??].
- GRIFFIN, F. J. (1932b): On the contents of the parts and the dates of publication of 'SCHINER (J. R.), Fauna Austriaca. Die Fliegen (Diptera),' 1860–1864. – Annals and Magazine of Natural History (ser. 10) **10**: 570; London, [1932.??.??].
- HENDEL, F. (1901): Zur Kenntnis der Tetanocerinen (Dipt.). – Természetrzajzi Füzetek **24**: 138–142; Budapest, [1901.04.15].

- HENDEL, F. (1902a): Revision der paläarktischen Sciomyziden (Dipteren-Subfamilie). – Abhandlungen der K.K. Zoologisch-Botanischen Gesellschaft in Wien **2**(1):1-93; Vienna [1902.09.20].
- HENDEL, F. (1902b): Dipterologische Anmerkungen. – Wiener Entomologische Zeitung **21**: 265; Vienna [1902.12.10].
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE (1999): International Code of Zoological Nomenclature. 4th Edition. xxix + 306 pp., London: International Commission on Zoological Nomenclature [1999.08.??].
- KLOET, G. S. & HINCKS, W. D. (1945): Checklist of British Insects. lix + 483 pp.; Stockport: Kloet & Hincks [1945.12.??].
- KNUTSON, L. V., & BERG, C. O. (1967): Biology and immature stages of malacophagous Diptera of the genus *Knutsonia* Verbeke (Sciomyzidae). – Bulletin de l'Institut Royal des Sciences naturelles de Belgique **43**(7): 60 pp; Brussels [1967.04.30].
- MEIGEN, J. W. (1838): Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Vol. 7: "oder Supplementband.", xii + 434 + [1] pp.; Hamm: Schulz [after 1838.05.03, preface date].
- MELANDER, A. L. (1920): Review of the Nearctic Tetanoceridae. – Annals of the Entomological Society of America **13**: 305–332, pl. 30; Columbus [1920.09.??].
- ORTH, R. E. & KNUTSON, L. V. (1987): Systematics of snail-killing flies of the genus *Elgiva* in North America and biology of *E. divisa* (Diptera: Sciomyzidae). – Annals of the Entomological Society of America **80**: 829–840; Washington [1987.12.01 received at USNM].
- ROBINEAU-DESVOIDY, J. B. (1830): Essai sur les Myodaires. – Mémoires Présentés par divers Savants à l'Académie Royale des Sciences de Institut de France (ser. 2, Sciences, Mathématiques et Physiques) **2**: 1–813; Paris [1830.06.03].
- RONDANI, C. (1856): Diptera Italicae Prodrum **1**: 226 + [2]; Parma: A. Stocchi, [1856.??.??].
- ROZKOŠNÝ, R. & ELBERG, K. (1984): Family Sciomyzidae (Tetanoceridae). Pp. 167-193 in: Soós, A. & Papp, L. (eds.): Catalogue of Palaearctic Diptera **9**: 460 pp.; Budapest: Akadémiai Kiadó, [1984.??.??].
- SACK, P. (1939): Sciomyzidae. – In: LINDNER, E. (ed.): Die Fliegen der palaarktischen Region V (Fam. 37): 1–48 [1939.01.17], 49–87 [1939.07.05]; Stuttgart: Schweizbarth.
- SCHINER, I. R. (1862–1864): Fauna Austriaca. II. Theil, p. XXXII+1–658. Wien [= Vienna]: C. Gerold's Sohn
- SCOPOLI, J. A. (1763): Entomologia carniolica exhibens insecta carnioliae indigene et distributa in ordines, genera, species, varietes methodo Linnaeana. [30]+420+[1] pp.; Vindobonae [= Vienna]: J. T. Trattner [before 1763.06.23].
- SÉGUY, E. (1934): Diptères Brachycères (Muscidae Acalypterae et Scatophagidae). – Faune de France **28**: 832 pp. ; Paris [1934.??.??].
- STEYSKAL, G. C. (1965): Family Sciomyzidae (Tetanoceridae). – Pp. 685–695 in: Stone, A., Sabrosky, C. W.; Wirth, W. W.; Foote, R. H. & Coulson, J. R. (eds.): A catalog of the Diptera of America north of Mexico. U.S. Department of Agriculture, Agriculture Handbook 276, iv + 1696 pp.; Washington [1965.08.23].
- STEYSKAL, G. C. (1967): The generic name *Ilione* (Diptera, Sciomyzidae). – Entomologist's Record and Journal of Variation **79**: 152–153; London [1967.??.??].
- THOMPSON, F. C. & MATHIS, W. N. (1980): HALIDAY's generic names of Diptera first published in CURTIS' A Guide to ... British Insects (1837). – Journal of the Washington Academy of Sciences **70**: 80–89; Washington [1980.??.??].
- VERBEKE, J. (1964): Contribution à l'étude des diptères malacophages III. Revision du genre *Knutsonia* nom. nov. (= *Elgiva* Auct.). – Bulletin de l'Institut Royal des Sciences naturelles de Belgique **40**(9): 44 pp.; Brussels [1964.04.??].
- WESTWOOD, J. O. (1840). An introduction to the modern classification of insects. Vol. 2. Synopsis of the genera of British insects. – 158 pp.; London: Longman, Orme, Brown, Green & Longmans [the Diptera pages date from 1840.06.??].

Authors' addresses

George C. STEYSKAL (Deceased)
 F. Christian THOMPSON
 Systematic Entomology Laboratory,
 PSI, ARS, U. S. Agriculture,
 c/o National Museum of Natural History
 Smithsonian Institution
 Washington, D.C. 20560-0168, USA

Lloyd KNUTSON
 Laboratori, PSI
 U. S. Department of Agriculture
 (Retired)
 Salita degli Albito 29
 04024 Gaeta (LT)
 Italy

Wayne N. MATHIS
 Department of Entomology
 NHB 169
 Smithsonian Institution
 Washington, D.C. 20560-0169, USA

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